Third Quarter Summary of 2014 Fatal Accidents at Metal/Nonmetal Mines with Preventative Recommendations

During the third quarter of 2014, five miners in the metal and nonmetal mining industry were killed as a result of accidents.

Two miners died in **Powered Haulage** accidents, one miner died in an **Electrical** accident, one miner died as a result of a **Falling Material** accident, and one miner was killed in a **Fall of Person** accident. One of the fatalities was a **contractor**.

All of the fatalities occurred on the surface. Two of the miners killed were supervisors. Fatalities continue to occur that could be prevented using Blocking Against Hazardous Motion, Personal Protective Equipment and Lockout-Tagout best practices.

When completed, a detailed investigation report of each fatality is posted on the MSHA website at: http://www.msha.gov/fatals/fab.htm

Here is a brief summary of these accidents:

Two miners were killed in Powered Haulage accidents.

On July 23, 2014, a 51-year-old contract truck driver with 30 years of experience was killed at a cement operation while delivering a load of fly ash. The victim exited the truck to remove the tarp. A front-end loader backed down a ramp and struck the victim, pinning him against the truck.

On September 26, 2014, a 55-year-old maintenance mechanic with approximately 2 years of experience was killed on the surface of an underground salt mine. The victim was performing maintenance on a forklift in a mill building when the forklift moved forward, pinning him against a wooden support pole.

One was killed in an Electrical accident.

On July 21, 2014, a 28-year-old assistant plant manager with 11 years of mining experience was killed at a sand and gravel dredge operation. He was riding in an aluminum boat that became stuck in low water on top of 480 volt energized power conductors. The victim was electrocuted when he exited the boat, attempting to pull slack on the power conductors.

One miner was killed in a Falling Material accident.

On August 2, 2014, a 53-year-old plant operator with 25 years of experience was killed at a sand and gravel mine. The victim was working under the raised bed of a dump truck when the wooden block supporting the load suddenly failed, allowing the bed to fall and pin him. The victim was working alone and was not found until 10 a.m. on August 3, 2014.

One miner was killed in a Fall of Person accident.

On August 25, 2014, a 54-year-old truck driver with 1 year of experience was killed at a limestone mine. The victim went to a storage building to get some wooden planks. He climbed a stack of loaded pallets to get to the planks that were near the rafters and fell approximately 8 feet to the ground below. The next day two coworkers arrived at the mine and found the victim at approximately 6:05 a.m.

Best Practices

Effective safety and health management programs save lives. Workplace examinations can identify and eliminate hazards that kill and injure miners. Effective and appropriate training, including task training, helps ensure miners recognize and understand hazards and how to control or eliminate them.

While some of the specific circumstances of these accidents remain under investigation, here are some of the best practices that can prevent them:

Powered Haulage Accidents

These deaths can be prevented by following these Best Practices:

- Task train all persons to stay clear of mobile equipment.
- Be aware of the location and traffic patterns of mobile equipment in your work area.
- Before moving mobile equipment, look in the direction of travel and use all mirrors and cameras to ensure no persons are in the intended path.
- Sound the horn to warn persons of intended movement and give them time to move to a safe location.
- Operate mobile equipment at reduced speeds in work areas.
- Ensure that backup alarms and lights on mobile equipment are maintained and operational.
- Remain in your truck when mobile equipment is being operated nearby.
- Communicate with mobile equipment operators and ensure they acknowledge your presence. Stay in the line of sight with mobile equipment operators. Never assume the equipment operator sees you.
- Before operating equipment, always ensure other persons are clear and safely positioned.
- Establish and discuss safe work procedures before beginning work. Identify and control all hazards associated with the work to be performed and use methods to properly protect persons.
- Ensure that persons are trained, including task-training, to address the hazards associated with the work being performed.
- Follow the equipment manufacturers recommended maintenance procedures when performing repairs to machinery.
- Ensure that equipment control switches are in the off position and the brake is set before performing maintenance.
- Block equipment against motion before performing maintenance.

Always be aware of your surroundings and any hazards that may be present.

Electrical Accidents

These deaths can be prevented by following these Best Practices:

- Establish and discuss safe work procedures before beginning work. Identify and control all hazards associated with the work to be performed and use methods to properly protect persons.
- Train all persons to understand the hazards associated with working near energized electrical conductors.
- De-energize power and ensure that the circuit is visibly open before working near energized conductors that may have damaged insulation.
- Lock and Tag! Place YOUR lock and tag on the disconnecting device.
- Use properly rated Personal Protective Equipment (PPE) including Arc Flash Protection such as a hood, gloves, shirt, and pants.
- Ensure electrical conductors are properly rated and designed for the applications used.
- Ensure that ground fault protection is provided to protect persons
- Ensure that all electrical systems are safely designed and properly installed.

Falling Material Accidents

These deaths can be prevented by following these Best Practices:

- Establish and discuss safe work procedures before beginning work. Identify and control all hazards associated with the work to be performed and use methods to properly protect persons.
- Ensure that persons are trained, including task-training, to understand the hazards associated with the work being performed.
- Before working on equipment, block all raised components against hazardous motion and ensure persons are positioned in a safe location.
- Follow the safe work procedures provided by the manufacturer when performing all maintenance or repair work. If provided, always use the manufacturer's provided safety device or features for securing components against hazardous motion.
- Ensure that blocking material is competent, substantial, and adequate to support and stabilize the load. Blocking must be strong enough and secured to prevent any unintended movement.
- Never block with steel on steel or depend on hydraulics to support a load.
 Mechanical blocking can be achieved by installing a hinged prop leg.
- Do not assign a person to work alone in areas where hazardous conditions exist that would endanger his or her safety.

Fall of Person Accidents

These deaths can be prevented by following these Best Practices:

 Establish and discuss safe work procedures before beginning work. Identify and control all hazards associated with the work to be performed and use methods to properly protect persons.

- Ensure that persons are trained, including task-training, to understand the hazards associated with the work being performed.
- Develop a plan to store supplies and other items in an accessible way to ensure ease of retrieval and transportation.
- Always be aware of your surroundings and any hazards that may be present.
- Provide and maintain a safe means of access to all working places. Always work from a stable position.
- Do not assign a person to work alone in areas where hazardous conditions exist that would endanger his or her safety.
- · Account for all persons at the end of each shift.

Violations of the priority standards identified as **Rules to Live By** continue to be cited during investigations of mine fatalities. While not all of the fatality investigations have been completed and enforcement action taken, Rules to Live By standards continue to be identified in many of those fatalities. During inspections, MSHA's inspectors continue to discuss, with miners and supervisors, the root causes of these fatalities and the ways to prevent recurrences.

One **contractor** was killed at a metal and nonmetal mine in the third quarter of 2014. Contractors and mine operators should ensure that contractors are properly trained and following the mine's safety policies and procedures. Contractors and mine operators should coordinate operations at the mine to ensure that safety and health management programs are in place and are effective, all workplace examinations are performed, and safe work procedures are followed.

The importance and value of effective **safety and health management programs** helps send miners home safely at the end of their shifts. A thorough, systematic review of all tasks and equipment to identify hazards is the foundation of a well-designed safety and health management program. Many root causes of fatal accidents show that management policies, procedures, and controls were inadequate and failed to ensure that persons were protected from hazards that could have been identified and then eliminated or controlled. Mine operators and contractors need to implement effective safety and health management programs and periodically review, evaluate, and update them. If an accident or near miss occurs, find out why and act to prevent a recurrence. If changes to equipment, materials, or work processes introduce new risks into the work environment, address them immediately.

Conducting **workplace examinations** every shift can prevent injuries and deaths when safety and health hazards are **found and fixed**. Miners are protected when workplace examinations are conducted and hazards are identified and eliminated.

In the third quarter of 2014, 2 of the 5 (40%) miners killed had less than 2 years of mining experience. Providing effective and appropriate **training**, **including task training**, to miners is a key element in ensuring their safety and health while at work. Mine operators and Part 46 and Part 48 trainers need to train miners and supervisors to take appropriate measures to find and eliminate the conditions that lead to injuries and

deaths. Effective and appropriate training ensures that miners recognize hazards and understand how to control or eliminate them.

Take action to prevent additional injuries and deaths. Printable posters regarding the causes of some of these accidents can be found on the Alerts/Hazards section of MSHA's website, www.msha.gov. Fatalgrams describing each fatality and Best Practices to prevent a recurrence can also be found on the agency's website.

Miners deserve a safe and healthy workplace and the right to go home safe and healthy at the end of every shift, every day. Working together makes that happen.